

IN THE SPECIFICATION

Please amend the following paragraphs as indicated:

[0003] The invention relates to a device and to a method for determining the angle of rotation of a camshaft in relation to the crankshaft of an internal combustion engine, ~~in particular according to the preamble of Claim 1.~~

[0010] ~~According to the invention, this~~ This objective is met by the features of ~~the invention device Claim 1.~~

[0025] ~~The object of the invention~~ is also solved by the features of the method according to the invention claim 5. The additive and multiplicative linking of the commutation and trigger signals offers an inexpensive way to calculate the angle of rotation $\Delta\phi$.

[0028] $\text{Number}_{\text{Hallsignal Hallsignale}}$ = number of signals of a Hall sensor, which results from the quotient of the number of signals of all Hall sensors and the number of Hall sensors;

$\text{Number}_{\text{Magnetpole}}$ = number of magnetic poles of the permanent magnet rotor;

$\text{Number}_{\text{Referenzmark}}$ = number of reference marks of the crankshaft trigger wheel;

$\text{Total}_{\text{Trigger}}$ = number of trigger marks on the crankshaft trigger wheel;

$\text{Number}_{\text{Trigger}}$ = number of counted trigger marks since the last reference mark;

i = gear transmission ratio between regulator shaft and camshaft for fixed chain wheel.

[0038] ~~The drawing Figure 1~~ shows an electromechanical camshaft regulator with a regulating gearbox embodied as a triple-shaft gearbox and with an electric regulating motor.

Please add the following new paragraph:

[0038.1] Figure 2 shows a BLDC motor using three Hall effect sensors with electronic commutation in accordance with the prior art.

Please amend the following paragraphs as indicated:

[0040] The camshaft 5 is connected to a ~~not-shown~~ crankshaft 14 by a triple-shaft regulating gearbox 1. The first shaft 3 of the regulating gearbox 1 is locked in rotation with the camshaft 5, the second shaft 4 is connected with the crankshaft 14 ~~via a camshaft driving wheel 7~~ by a chain or toothed belt 16 extending between a crankshaft wheel 15 (which can act as a trigger wheel) and a camshaft driving wheel 7, and a regulating shaft 6 is provided as a third shaft with a permanent magnet rotor 8 of a regulating motor embodied as a BLDC motor 2 (brushless DC motor). A stator 9 of the motor 2 is connected rigidly to a housing 10 of the internal combustion engine. The stator is embodied as a three phase stator.

[0041] As shown in Figure 2, where a known BLDC motor is shown, the ~~[[The]]~~ BLDC motor 2 is commutated electronically by an electronic commutation control 11 that provides ~~means of~~ commutation signals to the driver 12. The commutation signals are ~~formed~~ triggered by the rotational movement of the permanent magnet 8 in three Hall sensors 13, which are allocated to the three phases of the stator 9.

[0043] Because the camshaft 5 is connected directly via the triple-shaft gearbox 1 to the BLDC motor 2, the position of the camshaft 5 can be determined with the Hall sensors 13 or their commutation signals as follows:

[0050] The number of rotations of the regulating motor can be calculated directly from the number of Hall signals of a Hall sensor 13 as follows:

$$U_{vw} = \frac{\text{Number}_{\text{Hallsignal}}}{\text{Number}_{\text{Magnetpole}}} \quad (7)$$

[0051] The number of Hall signals results from the quotient of the number of signals of all Hall sensors 13 and the number of Hall sensors 13.

[0052] A reference mark, with which the number of rotations of the camshaft driving wheel 7 can be determined, is located on a ~~not shown~~ crankshaft trigger wheel 15 for recognizing the cylinder 1:

$$U_{Kette} = \left(\text{Number}_{\text{Reference mark}} + \frac{\text{Number}_{\text{Trigger}}}{\text{Total}_{\text{Trigger}}} \right) \div 2 \quad (8)$$

with:

Total_{Trigger} = number of trigger marks on the crankshaft trigger wheel

Number_{Trigger} = number of determined trigger marks since the last reference mark.

[0055] For regulating the angle of rotation $\Delta\phi$, both the Hall signals of the BLDC motor 2 and also the reference and trigger mark signals of the crankshaft trigger wheel 15 are added. Thus, the current position of the camshaft 5 can always be determined via the equation (9).

[0057] The direction of rotation of the BLDC motor is also detected by means of the Hall sensors 13, because this can change according to the adjustment direction. In this case, the Hall signals are subtracted from the counter.

Please amend paragraph that includes the List of Reference Numbers on page 12 of the Substitute Specification as follows:

List of Reference Symbols

1 Triple-shaft gearbox

- 2 BLDC motor
- 3 First shaft
- 4 Second shaft
- 5 Camshaft
- 6 Regulating shaft
- 7 Camshaft driving wheel
- 8 Permanent magnet rotor
- 9 Stator
- 10 Housing
- 11 Electronic commutation control
- 12 Driver
- 13 Hall sensors
- 14 Crankshaft
- 15 Crankshaft wheel/Crankshaft trigger wheel
- 16 Chain or toothed belt